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ABSTRACT

A meta-analysis of 34 primary studies yielding 438 independent findings shows that 20 specific parenting practices, in combination, can account for as much as one-quarter (23.1%) of the variance in student achievement outcomes. Seven parenting practices, when combined, account for approximately one-sixth (16.3%) of the variance in student achievement. These positive parenting practices are: (1) educational aspirations and grade expectations; (2) parent engagement; (3) authoritative parenting; (4) autonomy support; (5) emotional support; (6) providing resources and learning experiences; and (7) specific parent participation activities in school. Socioeconomic status, grade level, and ethnicity are three moderator factors. Eight negative parenting practices, in combination, also account for 31.9% of the variance in student achievement and are linked to a student's lack of success. (Contains 1 table, 2 figures, and 220 references.) (Author/SLD)

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A Meta-analysis of Parenting and School Success: The Role of Parents in Promoting Students' Academic Performance

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A meta-analysis of 34 primary studies yielding 438 independent findings shows that 20 specific parenting practices, in combination, can account for as much as one-quarter (23.1%) of the variance in student achievement outcomes. Seven parenting practices, when combined, account for approximately one-sixth (16.3%) of the variance in student achievement. These positive parenting practices are: (1) educational aspirations and grade expectations; (2) parent engagement; (3) authoritative parenting; (4) autonomy support; (5) emotional support; (6) providing resources and learning experiences; and (7) specific parent participation activities in school. Socioeconomic status, grade level, and ethnicity are three moderator factors. Eight negative parenting practices, in combination, also account for 31.9% of the variance in student achievement and are linked to student's lack of success.

What role do parents play in promoting a child's success in school? Prior to 1981, the importance of parental involvement in improving student achievement was not generally recognized. In subsequent years, however, research has strongly confirmed that parental involvement enhances children's school success from earliest childhood through high school (Becher, 1984; Henderson, 1994; Miller, 1986; Swap, 1990). Although there is currently a general consensus that confirms the importance of parental involvement in promoting children's school success, there is not a clear understanding of the magnitude or nature of this relationship. Parents, educators, and politicians are currently interested in knowing the answers to these questions: (1) What can parents do to make their children better students? (2) How does parental input actually contribute to a child's school success? and (3) What particular practices make a difference in students' achievement? These are complicated questions that require complex, extensive responses founded upon a comprehensive investigation into the research on this topic.

The primary purpose of this study was to explore the relationship between specific parenting practices and students' school success as found in the research literature, utilizing a method known as meta-analysis. It was my intent to determine the precise nature and magnitude of the relationship between specific parenting practices and students' achievement in school. A secondary purpose was to identify moderating factors that may have an influence on the correlation between parenting practices and students' school success.

In the research literature, school success is operationally defined primarily by students' grades, grade point average, and standardized achievement test scores (Baker & Stevenson, 1986; Bright, 1992; Clark, 1993; Glasgow et al., 1997; Grolnick & Ryan, 1989). School success is also defined by cognitive and academic competence, orientation towards school, and engagement. Baumrind (1991) defines cognitive competence as including cognitive motivation and academic orientation. According to Lamborn et al. (1991), orientation towards school means the student's attachment to and satisfaction with school. Engagement is conceptualized in a multidimensional manner and includes students': (1) behaviors, such as persistence, effort, and sustained attention to tasks; (2) interest and excitement while performing these tasks; (3) and psychological orientation and preference for challenge, independent mastery and task involvement (Connell, Halpern-Felsher, Clifford, Crichlow, & Usinger, 1995).

Achievement is linked to school success and is mentioned often in educational literature but rarely defined. One definition of achievement is the accomplishment of the goals, processes, and outcomes of education (Darling-Hammond, 1985). Operationally, in many studies in the literature, achievement has been defined by class grades, grade point averages (GPA), standardized achievement test and self-designed test scores, teacher ratings of student performance, academic competence, school orientation, and graduation from secondary or post-secondary school. In my study, achievement is defined as students' accomplishment of academic goals in the core subject areas (i.e., reading, writing, mathematics, science, social studies) and school performance outcomes that are measured by standardized achievement tests, grades, grade point average, teacher tests and ratings, and orientation towards school.

Categories of Parenting Practices

After reviewing the research literature, I found more than 30 different parenting practices that emerged as associated with student achievement and success in school. Since there were so many multidimensional parenting practices that were classified as parenting and parent involvement, it was difficult to precisely define parenting behaviors that are most closely linked to students' school success. My study was designed to provide useful and organized information that clarifies the varied types of parent involvement practices examined by researchers in the field and their relative effectiveness. As a result, I categorized parenting practices into three dimensions that stemmed from the literature. The tripartite categorization that I have developed is modeled after other categorization systems within the literature, such as Epstein's model (1990) of six types of parent involvement and the conceptual frameworks of Grolnick and Slowiaczek (1994). The three dimensions within my study are *fundamental parenting practices, academic-oriented parenting practices,* and *school-participation parenting practices.*

Fundamental parenting practices provide for the child's general welfare, health, emotional, social, and psychological growth and development. *Fundamental parenting practices* include: (1) child-rearing practices (which involve communication about the child's problems and internalization of social values); (2) autonomy support; (3) emotional support; (4) warmth; (5) nurturing; (6) structure; (7) discipline; (8) control; (9) monitoring home and out-of school activities; (10) parental engagement; (11) time spent with child; (12) calm discussion; and (13) parenting style (Baumrind, 1967, 1971; Chao, 1994; Grolnick, 1989; Ryan, 1994; Wentzel, 1998). Parents have different notions of parenting, and consequently, they may have different parenting styles or methods of parenting that have an impact on a child's school success. Within the past three decades, research in the fields of psychology and education has affirmed that parenting styles are important in shaping the child's social, psychological, and cognitive development (Baumrind, 1967, 1971; Dornbusch et al., 1987; Glasgow et al., 1997; Maccoby & Martin, 1983). Therefore, parenting styles are included in the *fundamental parenting practices* category.

Academic-oriented parenting practices provide for the child's intellectual growth and development either at home or outside. *Academic-oriented parenting practices* include these activities: (1) monitoring school progress and homework supervision; (2) encouraging and helping with reading and language skills; (3) managing the child's schooling and academic strategies; (4) providing a special place to study; (5) finding strategies and solutions to

school problems; (6) providing cultural enrichment; (7) setting goals and standards; (8) communicating educational aspirations for attainment and grade expectations; (9) providing academic support; (10) proactive teaching; (11) commitment to education; and (12) providing resources and learning experiences (Baker, 1986, Caplan, 1992; Conway, 1994; Davis-Kennedy, 1996; Eagle, 1989; Epstein, 1984; Fehrmann, 1987; Garner, 1991; Goldenberg, 1984; Okagaki, 1993; Pettit, Bates & Dodge,1997; U.S. Department of Education, 1997).

School-participation parenting practices provide for the child's academic growth and development by parental participation in school activities and interaction with school personnel. *School-participation parenting practices* include: (1) volunteering at school; (2) attending and being aware of school and classroom activities or events; (3) attending parent-teacher conferences; (4) participating in school decision-making councils; and (5) communicating with teachers (Adunyarittigun, 1997; Carey, 1996; Conway, 1994; Ford, 1989; Griffith, 1996; Herman, 1980; Reynolds, 1992; Singh et al., 1995; U.S. Department of Education, 1997, 1998). The categorization of more than 30 parenting practices identified in the research literature into *fundamental, academic-oriented,* and *school- participation parenting practices* serves the purpose of systematically linking these parenting practices and simplifying the analysis of their association with students' school success.

Since there were so many varied parenting practices that were found in the literature, it became important to pinpoint and narrow down the specific behaviors that were most closely correlated to students' school success. There were also moderating factors, such as socioeconomic status, family structure, ethnicity, gender, grade level, and previous achievement that frequently appeared in many of the studies. In addition, while closely examining these parenting practices, it became evident that some practices promoted students' achievement while others detracted from it. Therefore, the meta-analysis and research investigation was guided by the following research questions: (1) What specific parenting practices make the most difference in promoting student achievement? (2) What other factors have an influence on the relationship between specific parenting practices and student achievement? and (3) What specific parenting practices are most negatively associated with student achievement and should be avoided?

For the purpose of this study it was necessary to make several assumptions. First, all the studies included in this meta-analysis were estimating the same relationship between parenting practices and student achievement. Second, the separate tests that went into the meta-analysis were independent of one another. Third, the primary researchers included in this meta-analysis made valid assumptions when they computed their results of statistical tests. Fourth, the information and statistics given in the included studies was accurate. Next, mean scores on standardized achievement tests, grade point averages (GPA), teacher ratings, curriculum-based and district-developed tests, academic competence and orientation towards school were measures of academic achievement. Last, for national studies, the number of sample participants from each of the six designated locations within the United States was evenly distributed for statistical analysis purposes within my study.

Methods

In the interest of finding order out of chaos, I chose to do a research synthesis known as a meta-analysis. "If I have seen further it is by standing on the shoulders of giants." This interesting statement was made by Isaac

Newton to allude to the progressive and cumulative nature of science (Hunt, 1997). Knowledge has amassed over time, but in recent years in virtually every scientific field, there has been an increasing level of doubt as new research seemingly contradicts our existing knowledge. According to many researchers (Cooper, 1998; Hunt, 1997; Wolf, 1986), a remedy for this chaotic situation is the meta-analysis. Meta-analysis is a quantitative method and is viewed as an efficient way to summarize large literatures and "bring effects into sharper focus, particularly when the results of all the studies are not consistent" (Wolf, 1986). A meta-analysis is a research synthesis that quantitatively integrates the statistical information from a set of previous studies and then statistically analyzes the overall body of statistical results to draw new, overall conclusions. It may address multiple related hypotheses and examine the relationship between several independent variables and a single dependent variable. A meta-analysis has the purposes of discovering consistencies as well as inconsistencies and accounting for the variability within a set of included studies (Cooper and Hedges, 1994). After rigorously studying the methodology and evolution of meta-analysis, I have incorporated several meta-analytic procedures to accomplish my purpose of finding answers to the puzzling questions I have posed. My intent is to shed more light on our understanding of the relationship between parenting and student school success.

The fascinating history of meta-analysis is discussed in the book *How Science Takes Stock: The Story of Meta-Analysis* (Hunt, 1997). This book traces the evolution of meta-analysis as a method used in research, from as early as the 1920's to the 1970's. In the 1920's, Tippett, a statistician who worked on agricultural studies, first devised a system of combining probability values of several studies. By the 1970's, Robert Rosenthal, a professor at Harvard University, and Gene Glass, a professor at the University of Colorado and President of the American Educational Research Association, simultaneously developed methods for combining the effects of psychological studies and began what is known as " the meta-analysis movement"(p. 12). Other statisticians who were influential in refining the methodology of meta-analysis were Frederick Mostelier of Harvard University, Ingram Olkin of Stanford University, and Larry Hedges of the University of Chicago.

A meta-analysis can accomplish two fundamental tasks: learning from combining studies and learning from comparing studies. Learning from combining studies refers to finding, summarizing, and describing the already existing research results, while learning from comparing studies refers to making additional analyses that shed new light on variations in the phenomenon under study and on theoretical issues. Thus, the meta-analyst, can sometimes make inferences that extend beyond the original results (Hall, 1994). A meta-analysis is, therefore, important because by combining studies, it presents the most current state of knowledge regarding the relation(s) of interest, and it highlights significant issues that remain unresolved. In addition, the meta-analyst, by comparing studies, can direct future research so that it yields a maximum amount of new information.

Literature Search

My literature search began in June, 1998 and has been ongoing. In seeking to find particular studies that were appropriate for my meta-analysis, I was compelled to narrow down my search to meet the specific criteria for selection that I had initially established. At first I meandered through the literature and built a knowledge base by reading relevant books, journal articles, and reports. Over time, I learned to refine my criteria for selection and

became more discerning. Consequently, I had to reject several primary studies from the meta-analysis that did not meet the criteria for selection.

Inclusion Criteria

For the investigation of the literature, I decided to include only those studies that fit within specific designated parameters. Only primary studies from 1979-99 derived from American sources of information and written in English with experimental, causal-comparative, correlational, or combined research designs were included. In addition, the sample sizes in the included studies had to be greater than or equal to 25. The target population in the studies was American students from grades K-12 and included all ethnic groups, such as European-Americans, Latino-Americans, African-Americans, Asian-Americans and Native-Americans. Additionally, only studies that focused primarily on the topic of investigating the relationship between parenting and school success and that focused on the general student population were included. Finally, only studies with correlations between parenting practices and student achievement that reported *r* scores, t-scores, or F-scores that could be converted to *r* indexes were included.

Several studies were excluded from the meta-analysis because the sample size was smaller than 25 (Adunyarittigun, 1997; Garner, 1991; Ladousa, 1988; Leveque, 1994). Other studies were rejected because the research design did not provide reported correlations between parenting practices and measures of student achievement (Eccles & Harold, 1996; Sanders et al., 1999; Steinberg, Dornbusch, & Brown, 1992; U.S. Department of Education, 1997). Two studies were rejected because the sample of students was not within the K-12 range (Chao, 1994; Forsyth & Mc Millan, 1981). One study was rejected because it was not dealing with American students but with a Canadian sample (Nadon & Normandeau, 1997). All secondary studies and qualitative studies on the topic of interest were also omitted from the meta-analysis. An important part of the filtering process involved sifting out those studies that did not investigate a relationship between parenting practices and student achievement. Categorizing and labeling the collection of studies became important for managing the literature. The literature search continued as I concurrently evaluated and extracted data from the accumulated materials.

A variety of methods were used to locate studies that included formal, informal, and secondary channels so that my research was not biased in the direction of published studies only. The informal channels were personal contacts, solicitation letters, traditional invisible colleges, electronic invisible colleges, and the World Wide Web. My personal contacts were students, professors across the United States, and colleagues who shared ideas, papers, and articles. As personal solicitations, I wrote letters and sent e-mails to researchers in the field of education and psychology to ask for current relevant research studies or unpublished conference reports. After running across multiple studies by the same author, I compiled a list of noteworthy researchers who might be hubs of parenting research wheels. In July and August, 1999, I contacted these researchers by mail and/or e-mail and received many responses. I also referred to the 1999 American Educational Research Association Annual Meeting Program booklet, *On the Threshhold of the 21st Century,* and wrote letters to researchers of unpublished reports on topics related to mine. In addition, I attended the American Educational Research Association Meeting on April 19, 1999 and obtained copies of four unpublished reports.

To find more information on the procedures utilized in meta-analysis and to search for a statistical meta-analysis software package, I searched the World Wide Web. After downloading several software packages (i.e., MetaWin, Ralf Schwarzer's Computer Programs for Meta-Analysis, EPIMETA, Arcus Quickstat, and Meta-Calculator), I tested them out. The program that was of most assistance to me was Meta-Calculator, which I downloaded from Larry C. Lyons and Wendy Morris. Additionally, I used Lotus 1, 2, 3 and SPSS for meta-analytic and statistical procedures.

The formal channels I used were professional conference paper presentations, personal journal libraries, electronic journals and research report reference lists. I relied heavily on research report reference lists, sometimes known as the ancestry approach. I used reference lists provided by other previous research synthesists on my topic of interest (Becher, 1984; Henderson, 1987; Henderson, 1994; Miller, 1986; Slaughter & Epps, 1987; Swap, 1990; Ziegler, 1987). Henderson's research review (1994) provided me with a starting point and approximately 15 relevant studies.

To find primary studies that measured correlations between parenting practices and student achievement in school, I consulted several databases. The reference databases used included ERIC, PsycLIT, and DAI. My search began on Educational Resources Information Center (ERIC), and I used "parents" and "student achievement" as my descriptors. Though I got 476 hits, I only examined relevant abstracts. Then I used "parent involvement" and "student achievement" as descriptors and limited my search to primary research studies only. I found 215 hits and selected approximately 25 of these studies to zero in on. I also did author searches to find records that were relevant to my topic. Later, I expanded my descriptors to "parenting" and "school success" and examined abstracts of the first 80 hits. When using the PsycLIT database (1988- 1999), I selected the descriptors "parents" and "student achievement." Consequently, I found 20 hits from 1988-98. In addition, I used Dissertation Abstracts International (DAI) and read more than four dissertations related to my topic, including Conway (1994), Childs (1979), Grossman (1998), and Bright (1992). I limited my search to records in English and "not postsecondary" and "not college."

To protect the validity of my meta-analysis, I created a broad and exhaustive search of the literature. Although books were a wonderful source of background information for me, they were not a rich source of primary studies with correlational research designs. I used primary studies from only 2 books. In general, published research journal articles and reports formed the bulk of my synthesis. Initially, I examined a total of 224 studies to gather information on the topic of my research interest. As I gained a better understanding of the direction of my research design and developed a set of criteria for inclusion and exclusion, I decided to include 34 primary studies with 438 independent findings in my meta-analysis. Of these findings, 370 were from journal articles, 7 from books, 24 from dissertations, and 37 from research and government reports. Unpublished studies were also included in my investigation to examine the most current studies and to avoid overrepresented statistically significant results.

To ascertain whether chronology might shed any new light on my topic of interest, I examined the years in which the studies in my meta-analysis were published. A majority of the independent findings included in my meta-analysis emerged from 1992-4, and this indicated a heightened interest in the topic of parental involvement and its relationship to student achievement during these years.

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Computation of Effect Sizes

From the 34 primary studies included in the meta-analysis, there were 438 findings that were identified and treated as independent findings. The reason why they were treated as independent findings is that a more precise and specific investigation of the particular parenting practices that influence students' achievement and school adjustment could be successfully completed if the findings were differentiated and not clustered together. Though many of the studies had multiple hypotheses tests, I zeroed in on the statistical procedures that utilized bivariate correlational techniques only and data points that tested a bivariate relationship between a specific parenting practice and a measure of students' school academic performance. Based on a review of the literature, I identified frequently studied independent variables of parenting practices and dependent variables of student school performance. Then, I examined the Pearson *r* scores, or product-moment correlation coefficients, for these variables within each of the included studies. The Pearson product-moment coefficient, or *r* score, mathematically expresses the direction and magnitude of the relationship between two measures that yield continuous scores (Gall, Borg, & Gall, 1996). If a Pearson *r* score was not reported for a bivariate relationship between the designated variables, I used conversion formulas (Cooper, 1998, p.141) to arrive at an equivalent *r* score. The *r* -scores were the measures of the effect sizes used in this meta-analysis, and these *r* -scores were converted into *z* scores, or standard scores with a mean of zero and a standard deviation of 1.00.

Coding

To account for possible differences between study outcomes, I coded studies according to 5 major groups of factors: (1) study identification, (2) demographic information, (3) research design, (4) achievement outcome, and (5) outcome variable. In total, I coded 120 variables for each of the 438 independent findings and created a 438 × 120 matrix. I used a number 1 to indicate "yes" and a zero to indicate a "no" for each question. For study identification, I recorded and coded the author, title, type of reference, year of publication, and source of reference. The demographic information that I coded included the following: the purpose of the study; research questions; setting of the study (public vs. private school; grade level); school location (six categories including NE, NW, SE, SW, NC, SC); funding; sample size; type of student grouping; and student variables (socioeconomic status, ethnic group, and ability level). The grade level, school location, socioeconomic status, ethnic group, and ability levels were also coded because I expected that some of these variables had an interactive effect on the relationship between the parenting practices and the student outcomes, and I wanted to test them as possible moderator variables later on.

With respect to research designs, I coded 6 design groupings: (1) one group pretest-posttest experiment; (2) nonequivalent control group; (3) one group posttest only; (4) correlational; (5) causal-comparative; (6) causal-comparative and correlational methods. I did this because I wanted to determine whether the research designs had an impact on the results of the studies. In addition, I coded random selection, random assignment, control group, and repeated measures. For the independent variable, parenting practices, I coded the practices by sub-dividing them into the three aforementioned categories —*fundamental, academic-oriented,* and *school-participation parenting practices*—and then I coded each practice within the appropriate category and individually as well. I did this because I realized early in the study that in order to refine my findings and to isolate specific parenting practices that had the highest effect sizes, I needed to individually examine each parenting practice.

In addition, for the achievement outcome variables, I coded this information: (1) 21 types of achievement outcomes tested in the studies; (2) 16 types of outcome measures; and (3) 21 types of standardized achievement tests (i.e., ITBS, CTBS, MAT, and more) utilized in the studies. The types of achievement tested included reading, mathematics, science, social studies, writing, foreign language, cognitive competence, quantitative ability, verbal ability, academic performance, academic tasks, engagement, practical tasks, self-confidence, homework completion, student's educational expectations or a combination of these performance tasks. Measures of student achievement included standardized achievement tests, grades, grade point average, curriculum-based test, self-designed tests, teacher tests, teacher ratings, academic competence, school orientation or a combination of these outcome measures.

For the outcome variable, I coded these factors: (1) type of score (i.e., correlation, F-score, t-score, R^2, other); (2) the effect size direction (+, -); (3) effect size value; source of the *r* statistic; (4) probability level (p); and (5) significance of the *r* statistic. The effect size value was the *r*-score or correlation measure. Lastly, I coded the findings and conclusions of each study. For each study, I also coded the quality score to determine whether my findings were derived from high enough quality studies to produce valid statistical results. The quality score was determined from a Quality Instrument which I created based on previous research with 27 criteria to evaluate the strengths and weaknesses of each of the studies included in the meta-analysis (Childs, 1979; Fink, 1998; Gall, Borg, & Gall, 1996). The categories included in the quality instrument were the following: (1) presentation of the problem, (2) sampling, (3) instrument, (4) survey design, (5) research design and implementation, (6) study of relationships/correlational, and (7) conclusions. After evaluating a quality score for each study, I entered this percent score onto the coding sheet.

Description of the Included Primary Studies

The researchers of the 34 studies included in the meta-analysis used samples of students ranging from kindergarten through grade twelve. The representation of elementary students in kindergarten through grade 5 occurred 416 times within the sample populations investigated. The middle school students in grades 6 through 8 were represented 234 times, and high school students were represented 378 times. The total number of students and parents in the sample populations for the included studies were as follows: 97,375 elementary school individuals; 1,417,022 middle school individuals; and 315,953 high school individuals. The total sample population for all the studies included in the meta-analysis was 1,827,134 individuals. Therefore, even though elementary students were represented most often in the included studies, the largest portion of the total sample population was composed of middle school children and/or their parents. There were 196 independent findings that were on the elementary school level, 125 on the middle school level and 123 on the high school level (due to overlaps, some studies incorporated students from more than one school level so the total of 444 exceeds 438). Sample sizes also ranged from as small as 41 (Baker and Stevenson, 1986) to as large as 28,051 (Fehrmann, Keith and Reimers, 1987). The average sample size was 3,871, and the median sample size was 423. Sample populations included parents and /or students who stemmed from varied family backgrounds.

Within the included studies, I found the largest number of parenting practices correlated to student achievement outcomes fell into the *fundamental* category and the smallest number fell into the *school-participation* category. A total of 11 parenting practices from the studies fell under the *fundamental* category. There were a total

of 204 *fundamental parenting practices* that were coded, with approximately 50% of these dealing directly with parenting styles. The total number of cases dealing with *academic-oriented parenting practices* was 155, with parents' educational aspirations and expectations investigated most frequently in 50 cases (32%). Other *academic-oriented parenting practices* that were also frequently investigated in 46 out of the 155 cases (30%), were parents' providing academic support, advice, or proactive teaching, and parents' ethical and cultural values devoted to education. In addition, *school-participation parenting practices* were investigated in 79 instances, and of these, 54 out of 79 (68%) examined parents' attending school and classroom activities and meetings, while 21 out of 79 (27%) examined parental communication with teachers and the school (see Table 1 below).

TABLE 1
Parenting Independent Variables and Number of Cases

Code	Definition (Code)	n of cases
Fundamental (FPP)		204
	Child-rearing (CR)	11
	Autonomy support (AS)	12
	Emotional support/motivator (EMOS)	01
	Warmth (WARM)	05
	Structure (STRUC)	19
	Discipline (DIS)	02
	Control (CONT)	03
	Frequent church service attendance (CHUR)	01
	Parental engagement and involvement (PEPI)	18
	Time spent with children and calm discussion (TIME)	07
	Parenting styles or patterns (PSTYLE)	106
	Positive reinforcement (PR)	07
	Other (O1)	12
Academic-oriented		155
(AOPP)	Monitoring School Progress /Talking about school (MON)	30
	Homework supervision (HWSUP)	36
	Assisting in reading and language skills (RDGLANG)	10
	Providing a special place to study (SPPLSTUDY)	02
	Finding strategies and solutions to school problems (STRAT)	14
	Setting goals and standards (GOAL)	03
	Educational aspirations and expectations (ASPEXP)	50
	Providing academic support/ advice/proactive teaching (ASADV)	46
	Commitment to education (COMTE)	27
	Ethical/cultural values devoted to education (ETHVAL)	46
	Providing resources and learning experiences (RES)	10
	Other (2) (O2)	03
School Participation		79
(SCHPART)	Volunteering in school (VOL)	05
	Attending school/ classroom activities & meetings (SCHACT)	54
	Attending parent-teacher conferences (PTC)	00
	Participating in school-decision making councils (DMC)	01
	Communicating with teachers and school (CMTR)	21

The "other" categories were created to allow for additional types of parenting practices to be coded though they did not fit into the most commonly identified practices within the studies included in the meta-analysis.

Within the included studies, numerous outcome measures that related to student achievement were investigated. The most frequently used outcome measures were standardized achievement tests (197 out of 438 cases, or 45%), class grades (73 cases, or 17%) and Grade Point Average or GPA (59 cases, or 13%). The

standardized achievement tests most frequently utilized by the researchers to measure student achievement were the Iowa Test of Basic Skills (IRT), Comprehensive Test of Basic Skills (CTBS), Stanford Achievement Test (SAT), Item Response Theory (IRT), and the Metropolitan Achievement Test (MAT).

The 34 included studies basically utilized research design methods that have been categorized as causal-comparative, correlational, or a combination of both of these research methods. There were only three studies that used experimental research design methods that were included in this meta-analysis primarily because the "research on parental involvement is nonexperimental; parent involvement is often measured rather than assigned as in an experiment" (Keith, 1993, p. 475). From the few studies included in the meta-analysis that utilized the causal-comparative research method, the comparison groups were usually low- achieving groups versus high-achieving groups. The correlational research design method used in 29 of the primary studies in the meta-analysis utilized the correlational method to determine the extent of relationships between parenting practices and student achievement.

Two guidelines for judging effect sizes were taken into consideration (Cohen, 1977; Hinkle, Weirsma, and Jurs, 1994). According to Cohen, rough guidelines for judging effect sizes are as follows: small (r= .10), medium (r= .30), and large (r= .50). According to a Rule of Thumb for Interpreting the Size of A Correlation Coefficient, the size of a correlation can be interpreted as follows: (1) .90 to 1.00 (-.90 to – 1.00) is a very high positive (negative) correlation; (2) .70 to .90 (-.70 to -.90) is a high positive (negative) correlation; (3) .50 to .70 (-.50 to -.70) is a moderate positive (negative) correlation; (4) .30 to .50 (-.30 to -.50) is a low positive correlation; and (5) .10 to .30 (-.10 to -.30) is little if any correlation (Hinkle, Weirsma, and Jurs, 1994, p. 119).

In the studies included in this meta-analysis, measures of parent involvement, sources of report, and samples varied in each study. First, the measures of parent involvement varied from home involvement and school involvement to composites of home and school involvement. Second, the sources of report were parents, children, teachers, or a combination of these sources. Third, the reports included parent or child self-reports, home interviews, and ratings from teachers.

The two types of achievement that were tested most frequently were (1) a composite achievement that included many subject areas and different measures (GPA, standardized achievement test scores, teacher ratings), and (2) reading/English, science, social studies and mathematics combined. In 259 out of 438 cases, or 59%, the achievement tested was in reading, English, mathematics, science and/or social studies.

Meta-Analysis Techniques

There are several methods I used in this meta-analysis: (1) vote-counting methods; (2) combining effect sizes across studies by finding the average weighted *r*-index, and determining the confidence interval; (3) analyzing variance in effect sizes across findings by computing homogeneity analyses; and (4) computing multiple regression analyses by regressing the dependent variable (*r* score) on multiple independent variables (specific parenting practices) (Cooper, 1998). Before proceeding to explain the statistical procedures utilized for the meta-analysis, I first will define some of the variables that were included in the mathematical formulas. The basic unit I started with is N, or the total number of findings (438). The number of participants in the sample population for the i_{th} independent finding is N_i. The sample sizes for each of the independent findings were added together to arrive at the sum of N_i , or the total number of participants in all of the studies. The *z* scores (converted from *r* scores) for

each of the findings were summed together to get a total *z* score value or ΣZ. The product of the N and the Z was also calculated and summed together. These variables were utilized in many of the statistical formulas within the meta-analysis that have been derived from Harris Cooper (1998).

All of the 34 studies included in the meta-analysis were thoroughly dissected and analyzed as part of the coding and statistical procedures. In an effort to provide sufficient information about each of these primary studies, I have charted the researchers and dates of each included primary study, the sample sizes, number of included *r* scores (or effect sizes) from each study, range of included effect sizes, and categories of parenting practices found within each study (see Table 2). Although there were 438 independent findings with *r* scores within these studies, I have not reported all of these effect sizes due to the need to streamline this report.

TABLE 2

Studies in the Meta-analysis: Sample sizes (N), number and range of effect sizes (r- scores) between parenting practices and students' achievement outcomes, and categories of parenting practices within the studies

Primary Study	N	# *r* scores	Range of *r* scores	*FPP*	*AOPP*	*SCHPART*
Baker & Stevenson, 1986	41	11	-.350 to +.730		*	*
Baumrind, 1991	278	5	+.247 to +.403	*		
Bright, 1992	51	4	+.430 to +.630	*		
Cai et al., 1999	220	2	+.220 to +.220		*	
Caplan et al., 1992	460	3	+.489 to +.685		*	
Clark, 1993	536	4	+.301 to +.472		*	
Conway, 1994	13,340	20	-.161 to +.419	*	*	*
Davis-Kennedy, 1995	82	1	+.218 to +.218			*
Dornbusch et al., 1987	7,836	6	-.230 to +.130	*		
Fehrman et al., 1987	28,051	1	+.197 to +.197		*	
Ford, 1989	80	2	+.060 to +.108			*
Ginsburg & Bronstein, 1993	246	36	-.500 to +.290	*		
Glasgow et al., 1997	2,353	32	-.340 to +.320	*		
Griffith et al., 1996	11,317	2	+.670 to +.410			*
Grolnick et al., 1991	456	12	-.080 to +.180	*		
Grolnick & Ryan, 1989	180	9	+.080 to +.600	*		
Grolnick & Slowiaczek, 1994	302	12	+.100 to +.310		*	*
Keith et al., 1993	21,814	32	-.060 to +.420	*	*	*
Kurdek & Sinclair, 1988	219	4	+.245 to +.412	*	*	
Lamborn et al., 1991	4,081	22	+.010 to +.179	*		
Naftchi-Ardebili, 1995	212	6	-.260 to +.560			*
Okagaki & Frensch, 1998	275	9	+.444 to +.542	*	*	
Okagaki & Sternberg, 1993	359	9	-.270 to -.110	*		
Pettit et al., 1997	423	10	+.100 to +.270	*	*	
Phillips, 1993	180	12	-.190 to +.340		*	
Reynolds, 1992	481	48	-.150 to +.370		*	*
Reynolds & Gill, 1994	729	21	+.020 to +.320		*	*
Reynolds et al., 1992	644	8	+.222 to +.400			*
Singh & Bickley, 1995	21,814	20	-.140 to +.400	*	*	*
Steinberg et al., 1990	10,000	16	-.040 to +.220	*		
Steinberg et al., 1992	1,239	38	-.020 to +.300	*	*	
Steinberg et al., 1989	120	10	+.030 to +.787	*		
Tucker et al., 1996	196	10	+.300 to +.795	*	*	
Wang & Wildman, 1995	3000	1	+.474 to +.474		*	

FPP = fundamental parenting practices; AOPP= academic-oriented parenting practices; SCHPART= school participation parenting practices

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Results of the Meta-Analysis

For the vote-counting method, I took each finding and placed it into one of three categories: (1) statistically significant findings in the expected (positive) direction; (2) statistically significant findings in the unexpected (negative) direction; and (3) nonsignificant findings. Then, I tallied the number of positive and negative findings regardless of their statistical significance. Nonsignificant findings were included to enhance the preciseness of the study primarily because the significance cutoff of $p<.05$ is arbitrary. Then, I performed a sign test to discover if the cumulative results suggested that one direction occurred more frequently than chance would suggest. I used the formula to compute the sign test (Cooper, 1998, p. 118), and I found that there is a high probability that the relationship between the 27 parenting practices and student achievement in the target population is in the positive direction ($Z_{vc}=12.42$, $p<.0001$). Therefore, the probability that this many findings would be in the positive direction is better than $p<.0001$ (one-tailed) because this Z_{vc} value far exceeded the critical chi-square value of $z= 2.807$ at $p<.0025$ (Cooper, 1998, p. 119). The conclusion that a positive relation was definitely supported by the series of comparisons was not surprising since there was a total number of 335 positive *r* scores (76%) and a total of 103 negative *r* scores (24%) within the 438 independent findings.

To find the extent or magnitude of the relationship between specific parenting practices and student achievement, I calculated average effect sizes. Since most of the primary studies in my meta-analysis reported *r* scores, or *t*- test scores and F-ratio scores that could be converted to *r* scores, effect sizes were easily identified. To average the effects with precision, I found the average weighted *r* index and its associated confidence interval for all of the findings. First, I converted each *r* index into a corresponding *z* score, and then, I applied a formula to compute an average weighted *r* index (Cooper, 1998, p.140). Once the average weighted *r* index was calculated, the confidence interval around this effect size was calculated using a recommended formula (Cooper, 1998, p. 140). Once the confidence intervals were established, I referred back to Table 5.5 (p. 141) to retrieve the corresponding *r* indexes that indicated the average *r* index and the limits of the confidence interval. I also computed the average weighted *r* index for each of the three categories of parenting practices to determine which had the highest. The number of findings that were included in the calculation of each average weighted *r* score was taken into consideration because a conclusion based on 2 or less findings out of 438 total findings may not be as meaningful as a conclusion based on multiple findings (more than 10). On the basis of 5 or more findings, the results of calculating the average weighted *r* index were as follows: in the *fundamental parenting practices category*, the highest average weighted *r* index was spending time the child (.249) while the lowest average weighted *r* index was disengaged and neglectful parenting styles (-.240). In the *academic-oriented parenting practice category*, the highest average weighted *r* index was educational attainment and grade expectations (.345) while the lowest average weighted *r* index was homework surveillance (-.326). In the *school-participation parenting practices* category, the highest average weighted *r* index was volunteering in school (.583) while the lowest average weighted *r* index was communication with school and teachers (.061). As a category, the *academic-oriented parenting practices* had the highest average weighted r index (.267).

To discover why effect sizes varied in the different studies, I analyzed variance in effect size across findings by doing homogeneity analyses (Cooper, 1998). Before I could determine what other factors were contributing to the variance in effect sizes among the findings, I had to investigate whether the variances were due to sampling error alone. Therefore, I calculated the Q value, or the homogeneity analysis statistic, for the entire set of overall findings (Cooper, 1998, p. 147) and then referred to an expanded version of the Critical Value for Chi-Square Tables 5.6 and 5.7 (Cooper, pp. 146-147) that extends to 500 degrees of freedom. Since the obtained value of Q, (58, 874.10, *df* = 437) far exceeded the critical value for the upper tail of a chi-square at the chosen level of significance (233.99 and 553.13, at p= .05 for a *df* of 200 and 500, respectively), I rejected the hypothesis that the variance in effect size was produced by sampling error alone. I now was determined to find out what other factors were contributing to the variance in effect sizes in the overall findings.

Many of the studies included in the meta-analysis examined outside variables other than parenting practices and student achievement outcomes to determine whether additional influences had an interactive effect on the relationship between the independent and dependent variables. After reviewing the included studies, I decided to initially explore the factors of socioeconomic status, research designs, grade level, sample size, and ethnicity to see how each of these factors interact with the correlation between parenting practices and student achievement.

The final statistical procedure I utilized was to compute multiple regression analyses for the dual purpose of determining the correlation between the dependent variable and a combination of many predictor variables and to find moderator variables. Multiple regression analyses were computed using SPSS software to provide estimates of both the magnitude and statistical significance of relationships between a combination of the independent variables and the dependent variable (Gall, Borg, and Gall, 1996).

To determine which of the multiple parenting practices to include in the multiple regression, I first completed a chart of all of the parenting practices I had coded. I compared the *r* scores, R^2 scores and (average weighted *r*)^2 scores for each parenting variable. First, I regressed 20 of the most positive parenting variables on each other, making the *r* score the dependent variable. The purpose of doing this was to find out which of these 20 practices had the most significant positive effects on student achievement. From these findings, I then regressed 7 of the most significant positive parenting variables on one another, to determine the magnitude of the association of these combined parenting practices on students' achievement.

Next, I regressed 8 negative parenting variables on one another, making the *r* score the dependent variable. I did this because I wanted to determine the magnitude of the combination of parenting practices that have a negative association with student achievement. Following this, I calculated multiple regression analyses to test the moderator variables of grade level (elementary school, middle school and high school) by regressing each level separately onto the set of 7 positive parenting variables. I followed the same procedure to test for socioeconomic status and ethnicity as moderator variables. Then I repeated this same procedure for the 8 negative parenting variables.

After reviewing the initial results, I realized that I had to refine the parenting codes to make the analytical process more precise. I had to get rid of vague categories such as "other" and "child rearing" and disperse them into separate or new categories. In addition, I had to separate out those negative parenting practices that had been

merged with positive behaviors to distinguish their unique effects. For instance, I had to differentiate between *authoritative, permissive, authoritarian,* and *disengaged* parenting patterns that had been merged into the single category of parenting styles. I also had to differentiate between homework supervision and homework surveillance, which had different meanings and opposite effects. Homework supervision was defined as assisting with homework, establishing rules about doing homework, suggesting and implementing strategies for completing homework, and linking homework to direct education (Baker & Stevenson, 1986; Keith et al., 1993). In contrast, homework surveillance included checking homework or supervising it, reminding children that they should do their homework, and insisting that homework be completed (Ginsburg & Bronstein, 1993). As a consequence of the refining process, new parenting practice categories were created, such as encouraging conformity (stemming from child rearing); parent efficacy; restrictions for unsatisfactory grades; external rewards; *disengaged, neglectful,* and *uninvolved* parenting; homework surveillance; and negative control. Furthermore, to strengthen the influence of parenting practices that had only a few findings, I merged these with other parenting practices that were closely related to them. For instance, ethical and cultural values, frequent church attendance, and commitment to education merged into positive educational values; participation in school decision-making councils and volunteering in school merged into parent participation in school.

After completing a series of multiple regression analyses, I was able to find answers to my three research questions. My first research question was designed to discover which specific parenting practices make the most difference in promoting student achievement. I found that no single parenting practice accounts for a great deal of the variance in students' academic achievement, however, in combination, many parenting practices have a significant positive or negative effect. After performing a multiple regression analysis to determine the relative contribution of 20 independent variables that appeared to be positively associated with student achievement, the result was that the combined interaction of 20 particular parenting practices yielded a multiple correlation coefficient of R= .480. Therefore, these 20 parenting practices explain approximately one quarter, or 23.1%, of the variance in student achievement outcomes (R^2= .231). The 20 parenting predictor variables are listed as follows: (1) time spent with child; (2) parent efficacy; (3) supply a place to study; (4) goals; (5) parent participation in school; (6) emotional support; (7) positive reinforcement; (8) reading and language reinforcement; (9) autonomy support; (10) communication with teachers; (11) *authoritative* parenting; (12) homework supervision; (13) positive educational values; (14) participation in school activities; (15) monitoring school progress; (16) parent engagement and involvement; (17) aspirations for educational attainment and grade expectations; (18) strategies for school problems; (19) providing resources and learning experiences; and (20) academic support and advice. To determine which of the influence variables could be combined to form the best prediction of student achievement, I conducted a series of multiple regressions.

The results of a stepwise multiple regression analysis yielded a model summary that indicates seven parenting practices, in combination, have the most positive association with student achievement. This combination of seven parenting practices yields a multiple correlation coefficient (R) of .404, and this accounts for 16.3% of the variance in student achievement. It is also a measure of the magnitude of the relationship between student achievement and the combination of these 7 parenting predictor variables. These best predictor variables are: (1)

educational aspirations and grade expectations; (2) parent engagement; (3) *authoritative* parenting; (4) autonomy support; (5) emotional support; (6) providing resources and learning experiences; and (7) parent participation in school. Of the 20 parenting practices combined that account for approximately one quarter of the variance in student achievement, this combination of 7 parenting practices, therefore, accounts for approximately one-sixth of the variance in student achievement outcomes.

Since aspirations for educational attainment and grade expectations were examined in 50 findings and consistently ranked high as a predictor variable associated with student achievement, this predictor variable was the first entered in the stepwise multiple regression, with the dependent variable equal to the *r* score. In the multiple regression model, aspirations for educational attainment and grade expectations was a moderate predictor variable that yielded a correlation coefficient of R= .298. When parent engagement was combined with it, these two predictor variables together yielded a multiple correlation coefficient (R) of .320. When a third predictor variable, *authoritative* parenting was combined with the previous two predictor variables, there was a moderate improvement so that R increased to .342. With the addition of a fourth predictor variable, autonomy support, the multiple correlation coefficient (R) rose to .361. When a fifth predictor variable, emotional support, was combined with the previous predictor variables, the R increased to .376. With the addition of the sixth predictor variable, providing resources and learning experiences, the R rose to .391, and with the seventh predictor variable, R reached its best prediction of .404. The R^2 increments for the 7 predictor variables were, respectively: .089, .014, .014, .013, .011, .012, and .010. All of the other parenting variables were entered into the combination, but they were removed because they did not contribute significantly to the regression. To gain a better understanding of each of these 7 parenting practices, I have drawn from the research literature to provide further explanations below.

First, the relationship between aspirations for educational attainment as well as grade expectations and student achievement was investigated in 50 findings and found to have a moderately positive correlation (Mean r=.29, R^2= .08). This parenting practice includes parents' attitudes, grade expectations, goals, learning strategies, and aspirations for educational attainment (Conway, 1994; Keith et al. , 1993; Okagaki & Frensch, 1998). The findings indicated that there is a stronger association between parents who expect As and Bs and high-achieving students than between parents who are satisfied with Cs or below. Ethnicity was found to influence the relation between parents' beliefs about educational attainment and school achievement. In particular, Asian- American parents had higher ideal aspirations for a graduate or professional degree than either European-American or Latino-American parents (Okagaki & Frensch, 1998).

Second, parent engagement was a predictor variable explored in 25 findings within the meta-analysis and is positively correlated with student achievement (Mean *r* = .194, R^2= .038). Parent engagement incorporates: (1) being interested and knowledgeable about the child's life; (2) spending time with the child and the family; (3) being actively involved in the child's school and social lives; (4) monitoring school progress; (5) knowing the child's whereabouts; and (6) giving positive attention to the child-rearing process (Bright, 1992; Gronick and Ryan, 1989; Grolnick & Slowiaczek, 1994; Pettit et al., 1997).

Third, the relationship between *authoritative parenting* and student achievement (Mean *r* = .20, R^2 = .04) was investigated in 22 findings and was compared with *nonauthoritative* parenting in another 8 findings.

Authoritative parenting practices include these behaviors: (1) being demanding and yet responsive to children's needs and requests; (2) showing warmth and acceptance; (3) directing the child's activities in a rational, issue-oriented manner; (4) setting clear standards of behavior and employing supportive disciplinary methods; and (5) encouraging verbal give-and-take, social responsibility, and psychological autonomy (Baumrind, 1971; Maccoby and Martin ,1983; Steinberg et al., 1989). This type of *authoritative* parenting has been linked to greater school success more than any other parenting pattern for children and for high school adolescents. It is associated with: (1) higher academic achievement; (2) higher grades; (3) higher educational expectations; (4) better classroom engagement; (5) greater personal and social responsibility; (6) more self-reliance; and (7) fewer problem manifestations, such as less delinquent behavior, less anxiety and depression, and less drug and substance use (Dornbusch et al., 1987; Glasgow et al., 1997; Steinberg et al., 1989; Steinberg et al., 1990). The impact of *authoritative* parenting on school success is mediated through its effect on psychosocial maturity, and the relation between *authoritative* parenting and adolescent achievement may be reciprocal (Steinberg et al., 1989, Steinberg et. al, 1992).

Fourth, autonomy support, an overlapping branch of *authoritative parenting practices*, was investigated in 12 findings and was positively correlated to student achievement (Mean $r = .23$, $R^2 = .05$). Parents' autonomy support is defined by Grolnick and Ryan (1989) as "the degree to which parents value and use techniques which encourage independent problem solving, choice, and participation in decisions versus externally dictating outcomes and motivating achievement through punitive disciplinary techniques, pressure, or controlling rewards" (p. 144). Autonomy support means that parents encourage children to take initiative and make choices on their own. Parental recognition of children's feelings, need for making choices and personal goals facilitates the child's persistence at a task when no extrinsic reward is present. Greater autonomy support by parents was correlated with students' enhanced school success in these areas: (1) more autonomous self-regulation in children, such as initiating achievement-related behaviors and learning; (2) less acting out and fewer learning problems; (3) greater classroom competence; (4) higher standardized achievement; (5) higher grades; and (6) teacher ratings of higher cognitive competence (Grolnick & Ryan, 1989; Grolnick et al., 1991; Steinberg et al., 1989). Interestingly, Grolnick et al. (1991) found that mothers are more autonomy supportive than fathers.

Fifth, emotional support and parental warmth, which are also linked to *authoritative parenting practices*, was examined in 6 findings and was positively related to student achievement (Mean $r = .275$, $R^2 = .076$). Emotional support and warmth are part of supportive parenting and are directed at guaranteeing the child's physical and emotional well-being. Emotional support also means speaking to the child with a positive tone and expressing a positive attitude when speaking of the child. It means showing personal love and compassion, initiating positive physical contact with the child, and accepting positive physical contact from the child, and accepting the child for what he/she is (Baumrind, 1967; Pettit et al.,1997; Steinberg et al., 1989). Emotional support and warmth are positively associated with grade point average, standardized achievement scores, social skills, and school adjustment.

Sixth, providing resources and learning experiences appeared in 10 findings and also was positively and significantly related to student achievement (Mean $r = .25$, $R^2 = .06$). Providing resources means establishing a

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positive learning environment at home with reference materials (e.g. dictionaries, encyclopedias, supplementary learning materials), curriculum-related materials, study materials, educational games and puzzles. It also involves providing cultural enrichment activities (i.e., taking children to museums, public libraries, bookstores, and aquariums) and possessing the knowledge of how to help children in school. In addition, providing places to study at home, assisting with homework, and engaging in educational activities are important learning activities that are aspects of effective parent involvement (Cai et al., 1999; Clark, 1993; Reynolds, 1992).

Seventh, parent participation in school (defined as participating in decision-making councils or frequency of participation in volunteer activities at the school) was investigated in 6 findings and was found to be positively correlated to student achievement (Mean r = .32, R^2 = .10). To conclude, the best predictors of student school success are a combination of the 7 positive parenting practices mentioned above that interactively work together to achieve a maximum effect. These positive parenting practices account for 16.3% of the variance in student achievement. The entire group of 20 parenting practices, when combined together, account for 23.1% of the variance in student achievement.

The second research question was designed to discover moderator factors that have an influence on the relationship between specific parenting practices and student achievement. My findings indicate that three moderator factors are socioeconomic status, grade level, and ethnicity, which significantly interact with parenting practices and student achievement. With regard to the seven positive parenting practices, socioeconomic status (low, middle, high, mixed) is more important and influential for children from families with a high socioeconomic status (R^2= .611) and from a low socioeconomic status (R^2= .196) than for children who come from middle-class households (R^2= .01). The positive parenting practices that had a greater interaction effect on children from low socioeconomic status families were parent participation in school, emotional support, aspirations for educational attainment, engagement, and providing resources and learning experiences. The single positive parenting practice that had a moderating effect on children from middle class households was engagement, and the single positive parenting practice that had a moderating effect on children from high socioeconomic status families was *authoritative* parenting.

Grade level (elementary, middle, and high school) was also found to be a significant factor that has an interaction effect on the relationship between the seven positive parenting practices and students' school success. The influence of grade level is greatest for elementary school children (R^2 = .237), declines somewhat for middle school children (R^2 = .195), and is the least for high school children (R^2 = .101). This is consistent with the research literature that reports a decline in parent involvement as students get into the upper grade levels (Eccles & Harold, 1996).

Lastly, ethnicity (White, African-American, Asian -American, Latino-American, and Other, including Filipinos and Native Americans) was found to be a significant factor that has an interaction effect on the relationship between the seven parenting practices and students' school achievement. These parenting practices are somewhat more influential for children from Asian-American families (R^2= .330) and Latino-American families (R^2= .256) than for children who come from African-American families (R^2= .179). It is interesting that different parenting practices were associated with the different ethnic groupings. The 7 positive parenting practices were all associated

associated with student achievement for White students (R^2 =.202) and Other students (R^2 =.181). There were only five positive parenting practices that were associated with student achievement for Asian-American and Latino-American students: (1) engagement; (2) *authoritative* parenting; (3) parent participation in school; (4) aspirations for educational attainment and grade expectations; and (5) providing resources and learning experiences. Autonomy support and emotional support were apparently not as influential for these two ethnic groups. Six positive parenting practices were influential for African-American students; the one positive parenting practice that was less important for students within this ethnic grouping was autonomy support. In summation, socioeconomic status, grade level, and ethnicity are three factors that evidently have interaction effects on the relationship between the seven parenting practices within the model and student achievement outcomes.

The third research question was designed to identify those specific parenting practices that are most negatively associated with student achievement and should be avoided. In investigating the parenting practices that are most positively associated with student achievement, I came across several parenting practices that were found to be detrimental to student achievement and may even contribute to students' lack of success or school failure. Many parents may unwittingly, or even knowingly, be practicing negative parenting practices that are negatively correlated with student achievement. Some of the parenting practices that have the most negative association with student achievement are: (1) external rewards (Av Wt r= -.420); (2) homework surveillance (Av Wt r = -.326); (3) negative control (Av Wt r = -.281); and (4) disengagement (Av Wt r = -.240). My findings indicate there are 8 parenting variables that are negatively correlated with student achievement: (1) restrictions for unsatisfactory grades; (2) external rewards; (3) negative control; (4) homework surveillance; (5) disengagement; (6) encouraging conformity; (7) permissiveness; and (8) control. These 8 negative parenting practices stemmed from a total of 74 out of the 438 findings, and therefore, comprised approximately 17% of the findings. In combination, these 8 parenting practices are negatively correlated with school success and explain 31.9 % of the variance (r = .565, R^2= .319) in students' lack of school success. Each of these negative parenting practices will be explained in greater detail.

First, external rewards was examined in 4 findings and was found to be negatively correlated with student achievement (Mean r = - .40, R^2= .16). As a reaction to poor or unsatisfactory grades, parents sometimes offer their children a reward, such as money or a present, or offer to take them to a special place like out to dinner or a movie if they will do better the next time. According to Ginsburg and Bronstein (1993), parent practices such as these are counterproductive because external rewards foster extrinsic motivation rather than intrinsic motivation, and extrinsic motivation is more negatively correlated to school success.

Second, negative control was investigated in 4 findings and was also found to be negatively correlated with student achievement (Mean r = - .273, R^2= .074). Negative control means that parents respond to their children's bad grades by punishing or criticizing them. When parents ground their children or get angry with them for unsatisfactory grades, the parents are exhibiting negative control instead of encouraging their children and telling them that they are smart and will do better the next time.

Third, homework surveillance was investigated in 6 findings and was found to be negatively correlated with student achievement (Mean r = - .313, R^2= .098). In contrast to homework supervision, homework surveillance

was conceptualized as an overcontrolling communication. According to Ginsburg and Bronstein (1993), mother's surveillance of homework was significantly negatively correlated with the child outcomes of mastery, judgment, class behavior, grade point average, and achievement, while father's homework surveillance was negatively correlated with class behavior, grade point average, and achievement scores.

Fourth, restrictions for unsatisfactory grades was investigated in two findings and was found to be strongly negatively correlated with student achievement (r = .558, R^2= .311). Parental use of restrictions as a consequence of unsatisfactory grades was significantly associated with the lower grade point averages.

Fifth, disengagement, uninvolvement, or *disengaged, neglectful* and *unengaged* parenting styles were investigated in 10 findings and found to be negatively correlated with student achievement (r = - .233, R^2= .054). *Unengaged* families are neither demanding nor responsive and do not structure or monitor their children by setting behavioral expectations or standards (Baumrind, 1991). *Unengaged* parents are highly disorganized, have a high divorce rate, and usually manifest their own problem behaviors. Similarly, parents who are preoccupied with their own problems and disengaged from parental responsibilities characterize *neglectful* parenting (Glasgow et al., 1997). Uninvolved parents respond to students' unsatisfactory grades by doing nothing to help their child and do not expect their child to do better the next time (Ginsburg & Bronstein, 1993). Disengaged and uninvolved behavior by parents is negatively correlated with classroom behavior, engagement, homework completion, grade point average, and achievement in school.

Sixth, encouraging conformity was investigated in 12 findings and was found to be negatively correlated with student achievement, but to a trivial extent (r = - .012, R^2= .00). Encouraging conformity is categorized as a child rearing belief in which children conform to external standards, obey the teacher's demands, and respect adults and authority figures (Okagaki and Frensch, 1998). For European-American and Latino-American students, there was a negative association between parents who encouraged conformity and students' grades, but not for Asian-American students. Encouraging conforming behaviors was significantly negatively correlated with standardized achievement test scores in reading, language, and mathematics as well as teacher ratings of students' academic performance, classroom behavior, and self-confidence (Okagaki and Sternberg ,1993).

Seventh, permissiveness was investigated in 16 findings and was found to be negatively correlated with student achievement (r = - .08, R^2= .006). I linked permissiveness to *permissive, nondirective, indulgent,* and *laissez-faire* parenting styles (Baumrind, 1991; Dornbusch et al., 1987; Ginsburg & Bronstein, 1996; Lamborn et al., 1991). *Nondirective* parents are very nonrestrictive, rather responsive, disorganized, and non-confrontational (Baumrind, 1991). Dornbusch (1987) operationally defined *permissive* parenting as parents who do not feel that hard work in school is important and do not care if the student gets low or good grades. They have no rules for watching television, are not involved in education, and do not attend parent-school programs. Furthermore, they do not check or help their child with homework. *Permissive* parents make few demands for mature behavior and allow considerable self-regulation by the child. Similarly, *indulgent* and *laissez-faire* families are highly involved and accepting but low in strictness and supervision (Ginsburg & Bronstein, 1993; Lamborn et al., 1991). Generally, the researchers found that permissiveness and permissive types of parenting style are significantly negatively correlated with class behavior, grades, grade point average, and achievement.

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Eighth, control, which incorporates *authoritarian* and *enmeshed* parenting style was investigated in 21 findings and was found to be negatively correlated with student achievement (r = -.09, R^2= -.009). *Authoritarian* parents are high in strictness and supervision, emphasize obedience and respect for authority, and are low in involvement and acceptance (Glasgow et al., 1997; Lamborn et al., 1991). Ginsburg and Bronstein (1993) define two overcontrolling parenting styles: (1) *authoritarian* parenting, which is operationally defined as parents who make all the important decisions in the family; and (2) *enmeshed* parenting, which is defined as parents who pressure family members to spend most of their free time together. From the literature, it is evident that when parents are very controlling or restrictive, this type of parenting yields negative results with respect to student school success. My findings reflect those of Ginsburg and Bronstein (1993), who found that parental behaviors and family styles that were controlling of children's independent thinking and behavior, critical, or uninvolved were associated with a more extrinsic orientation and inferior academic performance. In contrast, these researchers found that parental behavior and family styles which were supportive and encouraging of children's autonomous expression and individual development were related to intrinsic motivational orientation and enhanced academic performance.

In order to find out the extent of the interaction effects of the same three moderator factors on the relationship between these negatively correlated parenting practices and student achievement, I computed multiple regression analyses for these relationships. Socioeconomic status was found to be a moderating variable that influences the relationship between the eight negative parenting practices and student achievement. There were three parenting practices that had more of a negative influence for children from families with a high socioeconomic status (R^2= .96) than for children from middle (R^2 = .000) or low (R^2 = .000)socioeconomic families: (1) control, (2) disengagement, and (3) permissiveness. For students from of all three socioeconomic groups mixed together (R^2 = .338), all eight negative parenting practices combined had a significant correlation in the negative direction with student achievement.

Grade level was also a moderating variable that influences the relationship between the eight negative parenting practices and school success. The interaction effect of grade level on the relationship between the eight negative parenting practices and student achievement is relatively strong for high school students (R^2 = .453) and elementary students (R^2 = .379), but trivial for middle school students (R^2 = .078). The eight negatively associated parenting practices combined have a fairly strong detrimental influence for elementary students. In contrast, for middle school students, only two parenting practices had a detrimental effect on student achievement: (1) restrictions for unsatisfactory grades, and (2) control. For high school students, three parenting practices combined were most detrimental to student achievement: (1) permissiveness, (2) disengagement, and (3) control.

As expected, ethnicity was a third moderating variable on the relationship between the eight negative parenting practices and students' school success. White children experience the greatest detrimental effects of the eight negative parenting practices correlated with student achievement (R^2 = .391), while African-American children (R^2= .186), Asian-American (R^2 = .334), Latino-American (R^2 = .288) and Other (R^2 = .141) ethnic groups experience the effects to a lesser degree. For African-American children, four parenting practices were more negatively associated with student school success: (1) disengagement, (2) control, (3) permissiveness, and (4) restrictions for unsatisfactory grades. For Asian-Americans and Latino-Americans, four parenting practices were more negatively

associated with student school success: (1) control, (2) disengagement, (3) encouraging conformity, and (4) permissiveness. For students from other ethnic backgrounds, only two parenting practices were negatively correlated with student achievement: (1) encouraging conformity and (2) control.

Discussion

The primary purpose of this meta-analytic study was to gain an understanding of the nature and magnitude of the relationship between parenting and children's school success so that new insights could be presented to parents, educators, and policymakers. Upon examining 438 independent findings from a select group of 34 studies included in this meta-analysis, I have been able to bring more focus to this issue. In examining the effects of parenting practices upon student achievement outcomes, I initially found that the findings indicated a low to moderate degree of association between many of the parenting practices and student school success. Upon computing a series of multiple regression analyses, however, I found that by combining the parenting practices to see how they interactively are associated with student school achievement, there was a dramatic increase in the magnitude of the relationship between a select group of parenting predictor variables and student achievement. In combination, 20 specific positive parenting practices accounted for as much as 23.1% of the variance in student achievement. Of these, seven parenting practices were identified as a model of parenting practices that have the most significant positive association with student achievement and account for 16.3% of the variance.

My research focused primarily on parent influences that are associated with student achievement, and my findings confirm that a combination of specific positive parenting practices accounts for approximately one quarter of the variance in student achievement. First I will summarize these, and then look at additional factors that may account for the remaining three-quarters of the variability. My findings indicate that seven parenting practices, when combined, have the most positive association with student achievement. These positive parenting practices are: (1) educational aspirations and expectations; (2) engagement; (3) *authoritative* parenting style; (4) autonomy support; (5) emotional support and warmth; (6) providing resources and learning experiences; and (7) very specific types of participation in school.

Of these seven parenting practices, high aspirations and grade expectations by parents is closely associated with student achievement. The findings of this meta-analysis indicate that there is a positive correlation between high-achieving students and parents who expect their children to attend a four-year college and graduate school. In addition, there is a stronger association between parents who expect As and Bs and high-achieving students than between parents who are satisfied with grades of C or lower and high-achieving students.

Parent engagement is also positively correlated with student achievement. Parents who enjoy spending time with their children and who are actively involved in their children's lives promote their child's success in school. This involvement includes monitoring school progress, knowing the child's whereabouts, showing the child that school is important to the parent, awareness of peer and social contacts, and being interested in and dedicated to the child. Conversely, disengagement by parents has the opposite relationship to student achievement. Children who come from families where parents are disengaged or uninvolved generally have poorer school performance and more internal and external problems.

Authoritative parenting is more positively associated with student achievement than other parenting style explored in the literature. This type of parenting includes being demanding of mature behavior but simultaneously being responsive to the child's needs. *Authoritative* parents allow their children to pursue their own interests, and they encourage autonomous behavior. The link between *authoritative parenting* and better school performance exhibited by higher grades, higher educational expectations, better classroom engagement, greater social responsibility, and higher overall achievement is not surprising since children brought up in families that are *authoritative* have greater psychological maturity. Children from *authoritative* families can make their own decisions in school as well as at home and are more intrinsically motivated to learn.

The autonomy support and emotional support variables that were found to be associated with enhanced student achievement, higher grades, and fewer learning problems are both parenting behaviors that are characteristic of *authoritative parenting* patterns. It is, therefore, not surprising that these types of parenting practices are linked to better student achievement. Parents who encourage independent problem-solving, choice, and decision making are giving their child valuable psychological tools needed for learning.

Providing resources and learning experiences is naturally linked to promoting student achievement. When parents are resources and are also engaged in creating a positive learning environment at home, as well as providing enriching educational activities inside and outside of the home, they are giving their children the message that school and learning are important. Children need to have the resources for succeeding in school on their desks and at their fingertips, and it is the responsibility of parents to provide children with the resources that schools suggest are necessary for attaining success in school.

The type of parent participation in school that was closely linked to student achievement included only two practices. These were attending volunteer activities and participation in school governance. Though these parenting practices were explored in a few studies, the correlation results were fairly high; therefore, these parenting practices were statistically and positively significant enough to be included in the group of best predictors of student achievement.

In contrast to positive parenting practices that enhance student achievement in school, there are also parenting practices that are associated with student achievement in a negative direction, particularly when parent behaviors incorporate a combination of these practices. Though examination of negative parenting practices was not initially part of the research investigation, these detrimental parenting practices emerged from the literature and demanded my attention. These eight negative parenting practices combined may account for as much as approximately a third, or 31.9%, of students' lack of school success.

The eight negative parenting practices are: (1) restrictions for unsatisfactory grades, (2) external rewards, (3) negative control, (4) homework surveillance, (5) disengagement, (6) encouraging conformity, (7) permissiveness, and (8) control. These negative parenting practices are all parenting behaviors in which parents are either over-controlling of children's independent thinking and behavior, too punitive, or too lax and permissive. This type of parenting behavior is associated with more extrinsic motivation and inferior academic performance. It is interesting that there is a distinction in the literature between parental supervision and parental surveillance. Parental supervision and monitoring of school work is a supportive parenting practice, while parental surveillance is

a negative parenting practice because when parents become too overbearing and insistent, then this type of behavior is linked to poor student performance in school. On the other extreme, when parents are too permissive and do not help their children with homework or establish clear guidelines for mature behavior, there is a negative correlation with class behavior, grades, and achievement.

Family background variables such as socioeconomic status and ethnicity have interaction effects that moderate the influences of parenting practices. Though the research findings indicate that parent involvement practices are more important than family background variables for determining students' school success, it is important to review the interaction effects of these two variables with respect to both positive and negative parenting practices.

Socioeconomic status is a moderating variable that has an influence on the relationship between the seven positive parenting practices and the eight negative parenting practices. Socioeconomic status is more influential for children from high and low socioeconomic backgrounds than for children from middle class backgrounds. The parenting practices that had a greater interaction effect on children from low status families were specific types of parent participation in school, emotional support, aspirations for educational attainment, engagement, and providing resources and learning experiences. If parents from low socioeconomic status families were to focus on practicing all of these parenting behaviors in combination, then it appears that they might be able to make a more of a positive contribution to their child's school success. Interestingly, the single parenting practice that had an interaction effect on children from middle class families was parent engagement. This is consistent with the finding that parent engagement is closely associated with a child's school success and parental disengagement is linked with the child's lack of school success, and it is important particularly for the middle class population.

With regard to the eight parenting practices that have a negative association with a child's school success, the findings indicate that socioeconomic status has an interaction effect as well. Interestingly, three parenting practices of being controlling, disengaged, and permissive had more of an influence on children from high socioeconomic status families than on children from lower socioeconomic families. This appears to indicate that these types of negative parenting practices may be more prevalent in higher socioeconomic status families, and the school success of these children might improve if these practices were avoided.

Ethnicity is another moderating factor that has an interaction effect on the relationship between student achievement and both the positive and negative parenting practices. With regard to the seven positive parenting practices, the findings indicate that these seven parenting practices combined are more influential for children from Asian-American families and Latino-American families than for children from European-American and African-American families. In particular, five of the seven positive parenting practices are of particular importance to Asian -American and Latino-American students. These five parenting practices include engagement, *authoritative parenting*, parent participation in school, aspirations for educational attainment and grade expectations, and providing resources and learning experiences. Autonomy support and emotional support were not as influential for Asian-American and Latino-American children as for European-American children. These findings indicate that these positive parenting practices are differentially associated with different ethnic groups and have varied influences on student achievement.

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Grade level also has an interaction effect. Parent involvement with children on the elementary school level, at home and at school, has been found to be more extensive than parent involvement on the middle school and high school levels. This may be due to many factors, such as the varied and increased complexity of the school structure, programs, and curriculum in the secondary grades, and children's changing attitudes towards parent involvement as they reach the higher grades. Additionally, as students advance to the secondary school level, parent involvement decreases and the effects of parenting practices decline because parents play a smaller role than other factors in students' lives. Nonetheless, parent involvement for students on all grade levels is important for boosting student achievement because adolescents benefit from supportive and positive parenting practices as much as children do. Adolescents need parental guidance, involvement, and support as they develop into independent, competent individuals. "Secure attachment to parents fosters a healthy self-confidence during adolescence as it does at other developmental stages. Therefore, relinquishing childhood dependencies on parents does not require adolescents to distance themselves emotionally from parents nor deny continuity with parental values" (Baumrind, 1991, p. 60).

I looked at parenting and students, and I found significant positive relationships between these variables. Though there is an assumption of causality in the literature that parenting practices directly influence student performance, my findings do not establish causality. Instead, they establish associations between specific parenting practices and student achievement. In the meta-analysis, I did not look at other factors that may affect the child's school success such as teachers, the school, the community, or the child's genetic predispositions. Nonetheless, I recognize that these multiple factors are interactive and need to be examined further, in conjunction with parenting practices, in future research.

There is a large body of research that indicates a combination of autonomy support, warmth and emotional support, high expectations, and providing resources and learning experiences have a positive relationship to student engagement and achievement. There are also theories that are consistent with the findings of my study (Connell & Wellborn, 1989). I have incorporated some of the theories and findings within the research literature with my findings to formulate both my own proposed theoretical framework and a theory of interactive and overlapping influences on student achievement in school (see Figure 1 and Figure 2, pp. 26-27). My theoretical framework examines how and why parents who follow these positive parenting practices may contribute to the school success of their child. The *Theory of Interactive and Overlapping Influences* explores the many additional influences on students' school success.

The positive parenting practices that have been identified have a combined influence on the child's development of inner resources; these inner resources, in turn, influence the child's school success (see Figure 1). As parents promote their child's development of perceived autonomy, via autonomy supportive actions, their child gains the self-confidence needed to make decisions on his or her own and to initiate behaviors independently at home and in school. On the other hand, if parents are overly controlling and do not give their children adequate choices, then their children become dependent on them to make their decisions and become less capable of showing initiative. Children also develop a sense of competence when parents devote time and effort to encourage them to think and problem solve independently.

The feeling of emotional security and being related to others is another self-system process that develops within the child when the parents and the child interact with one another in a warm and physically affectionate manner. The warmth and emotional support that parents provide for their children help them to develop into individuals who can connect with others and become socialized in other social contexts like school. In addition, firm guidance, a quality of *authoritative* parenting, has been found to be a contributor of psychosocial maturity, and this type of parenting style has been linked to the child's work orientation and student engagement (Connell & Wellborn, 1989; Steinberg at al., 1989). A child's psychological development and self-perceptions are clearly influenced by parenting practices and parents' perceptions of the child.

Student achievement in school is a complex process and involves many additional interactive influences. Epstein and Sanders (in press) look at the larger picture from a sociological perspective and expound a theory of overlapping spheres of influence. This view recognizes that the three contexts – home, school, and community – act as overlapping spheres of influence on children and on conditions and relationships in the three contexts. It is evident that parents exert an important influence on student achievement, but families do not exist in isolation, and their effectiveness is closely linked to influences of the child's teachers, the school, and the community in which they live. As children get older, the influence of their parents tends to diminish and the influence of others (i.e., peers) increases. There is certainly a need to look at the home, school, and community environments to determine how they can work together cooperatively to optimize students' levels of school success. The Theory of Interactive and Overlapping Influences addresses the interactions that take place within these contexts (see Figure 2 on p. 27).

Although I did not study these additional factors, I believe that factors such as the teachers' practices, school environment, community environment, and the child's attributes are important factors that may have to be examined and studied in future research. These factors, in conjunction with positive parenting practices, need to be studied to determine the extent of their interactive influences on students' success in school. The *Theory of Interactive and Overlapping Influences* is one that is primarily based on the belief that there are interactive and bi-directional effects among parenting practices, teacher practices, and student attributes within a community context. The possibility of multiple reciprocal effects must be explored. Parents may respond to a student's behavior, teacher feedback, and/or community pressure, while simultaneously, specific parenting practices may trigger teacher reactions and student behaviors. For example, teachers may respond favorably to parents who are highly involved in school activities and pay more attention to their child, while conversely, they may interpret lack of involvement by parents as an indication of uncaring parents and pay less attention to their child. Similarly, students may react to parent involvement practices, teacher practices, and community pressures while their own achievement-oriented behaviors may influence parenting practices and teacher practices. For instance, students whose parents are actively involved with their child in school-related activities may be more absorbed in their own schoolwork and more successful in school; the enhanced performance of the student may, in turn, inspire the parents to get even more involved in the child's education-related activities.

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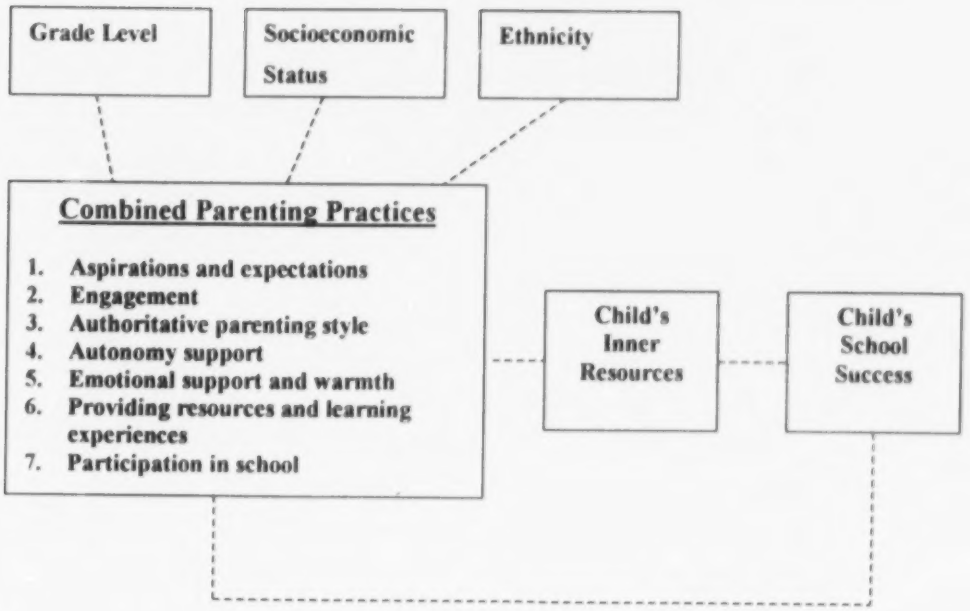

FIGURE 1. Theoretical Framework of the Meta-Analysis that incorporates the findings of this study and the reciprocal influences on student achievement.

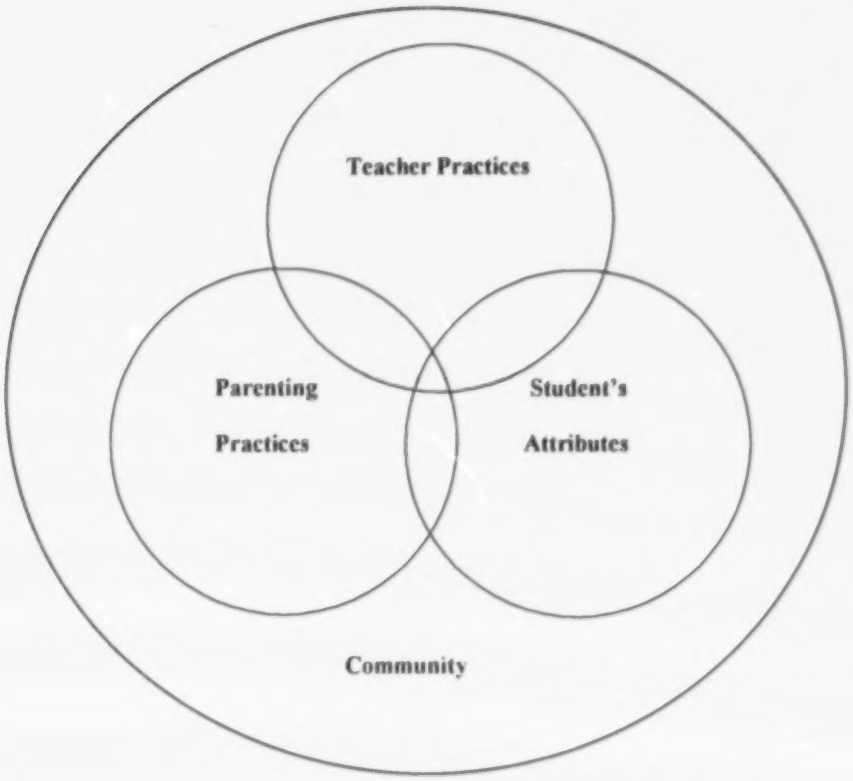

FIGURE 2. Theoretical Model of Interactive and Overlapping Influences within the larger context of the community.

It is my belief that teacher practices influence the child's academic performance. Since children have the psychological needs for autonomy, competence, and relatedness in order to be motivated to work in social contexts, teachers need to address these needs within the classroom by providing teaching practices that parallel the seven positive parenting practices. First, teachers need to have high expectations and aspirations for educational attainment for their students. Second, they also need to be actively engaged in the teaching process if they want their students to be engaged and interested in learning. Third, teachers who exhibit *authoritative* qualities, such as having firm control in the classroom, demanding mature behavior from students and being responsive to students' needs, are usually more effective in promoting student achievement than teachers who are too *permissive* or too *authoritarian*. In addition, the teacher role has expanded within the past decade. Teachers are sometimes expected to provide personal and emotional support to their students, as needed, to address the "whole child," particularly as part of the middle school philosophy, because the emotional problems of students may interfere with their learning capabilities. Additionally, providing resources and learning experiences to students daily is certainly an integral part of the teacher's job. Involving children in authentic activities that are challenging, interesting, and fun influences the level of the students' engagement in learning and achievement.

Teacher-child interactions and parent-teacher interactions may have an influence on children's school performance. In fact, Reynolds et al. (1992) found that the perceived quality of parent involvement, as an indicator

of the nature of the relationship between the teacher and parent, was significantly related to student achievement. The research also indicates that teachers' practices that involve families are equally important or even more important than family background variables such as race, ethnicity, socioeconomic status, or marital status for determining whether, how, and which parents become involved in their children's education (Epstein & Sanders, in press).

In addition, there are interactive effects between teacher-student relationships and parent-child relationships. For example, if teachers contact parents to report poor school performance by the child, this usually has a negative impact on parent-child relationships and may influence the parent to utilize more controlling parenting practices. Conversely, if teachers report to parents that student is successful, the parent-child relationship may tend to be more positive, and the parents may grant the child greater autonomy support. Similarly, there are interactive relationships between teacher-student relationships and parent-school relationships. When teachers are supportive and positive about a child's school performance, it is more likely that the parents will have a positive attitude towards the school and become more involved. The converse is also true.

I believe that the school environment, as well as the classroom environment, may be influential on student achievement and also affect the parent-child relationship. If a school cultivates a sense of school membership, then students feel relative autonomy, connected to their school, and competent. Personal support in school from teachers, peers, and administrators is important for students because it contributes directly to students' engagement in academic work. It also contributes indirectly to enhancing the bond between the student, the staff, and the organization, which, in turn, strengthens the students' investment in the goals and means of the school. The school also must offer resources and learning opportunities for children outside of the classroom so that they can experience success in other realms and gain recognition for their successes. Schools also must provide a caring climate in which all students have the opportunity to build new forms of competence and become successful.

Schools are embedded in a larger community, and community environment may influence student achievement as well as schools. Connell and Wellborn (1989) found that the contexts of the classroom, school, school system, community, and even the nation, carry powerful messages that influence children's beliefs about themselves. Epstein and Sanders (in press) emphasize the importance of collaborating with the community in "identifying and integrating resources and services from the community to strengthen and support schools, students, and their families" (p. 8). When students, parents, and educators take advantage of community resources, such as libraries, universities, museums, religious groups, community organizations, and social service agencies to advance students' learning activities, support families, and improve schools, then school success is promoted.

Parents, schools, and communities are external influences on children's school success. It is also important to acknowledge that an internal influence is the child's characteristics. Factors such as the child's age, sex, health, life experiences, genetic pre-dispositions, and innate talents may also be important factors that influence children's school success. Baker and Stevenson (1986) found that "combinations of the child's characteristics and the mother's characteristics may influence the degree and type of parental involvement in the school career of the child" (p. 165). A child's experience in school may trigger more parent involvement in school, and then more parent involvement may trigger better student achievement, and the result is cyclical. "Mothers may become more

involved in their children's schooling as a result of their good grades. Such a feedback loop suggests a cycle in which parent support maintains the ongoing performance of children and is consistent with the relative stability of children's school performance" (Grolnick & Slowiaczek, 1994). The reciprocal nature of the parent-child interaction may also apply in terms of the teacher-child interaction. If a child is academically successful in school, then the teacher may tend to challenge the child more and be more attentive to the child, and this leads to even better student performance. In contrast, if a child is unmotivated, disinterested, and performs poorly in school, then a teacher may tend to expect less from the student, and the teachers lowered expectations may lead to a decline in the student's academic performance.

To conclude, the *Theoretical Model of Interactive and Overlapping Influences* on student achievement is a proposed theoretical model that illustrates the interactive nature of the many parent and other influences that contribute to children's school success. A combination of positive parenting practices accounts for as much as approximately one quarter of the variance in students' achievement, but it is not a sufficient condition in itself for children's academic success. There is a need for more future research that incorporates path analyses to determine the causal relationships between parenting practices and student achievement. The role of parents in students' learning is important to students' learning, but there are many additional influences. Teacher practices, school environment, community environment, and characteristics and inner resources of the child may all have varying degrees of direct and indirect influence on a child's school performance, and these factors need to be explored further in future research.

Implications for School Policy

Though the entire focus of parent involvement policy initiatives has been in getting parents into the schools for a variety of activities, this direction needs to be re-evaluated because only certain specific activities are associated with enhanced student school performance. In addition, parent involvement in school does not work to the same extent for different ethnic and socioeconomic groups because parents have different beliefs about their role in their child's education and different work schedules that may not allow for active school involvement.

Parent involvement in school activities is not sufficient to enhance students' school success. The findings of this study indicate that a combination of specific parenting practices in the home have a far more significant positive impact on student achievement than school involvement parenting practices alone. Consequently, schools need to evaluate their parent involvement and parent education programs to be certain that the primary emphasis is on ways in which the schools can foster more positive parenting practices at home. Parents who are non-participatory in school events may not be uncaring parents, but in fact may be caring parents who enhance their child's school success by their home parenting practices.

Schools and parents need to have open lines of communication to accomplish common goals for the children. Clearly, the research literature indicates that parents want to be better informed of how they can help their children be successful in school. Parents need to be made aware that they do not necessarily have to be subject matter experts to promote their child's school success. Instead, by providing warmth, autonomy support, *authoritative parenting*, engagement, resources and learning experiences at home and by having high expectations

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and aspirations for their child's education and future, parents can be highly effective in enhancing their child's school performance.

Practitioners need to be sensitive to the diverse needs of students and parents from different ethnic, cultural and racial backgrounds. When schools implement policies and programs for students, practitioners need to be aware that ethnic, cultural, or racial differences may influence both students' school performance and parents' practices and beliefs. My study found that different parenting practices were associated with different ethnic groupings. Consequently, educators need to address and understand the varied needs of diverse groups.

Directions for Future Research

Though the research on the topic of parent involvement practices in relation to student school success is vast, there is still a great deal that needs to be explained and investigated further. After reviewing the findings of my meta-analysis, I have identified several areas of study that need to be explored further in future research.

One area of study is father involvement. Of the studies investigated, there were very few that examined the role of fathers in promoting their child's school performance. A few studies examined the interactive and separate roles of mothers and fathers (Grolnick & Ryan, 1989; Grolnick et al., 1991; Tucker et al., 1996), but there were no correlational or experimental studies that looked at father involvement exclusively. There is a need to examine both the interactive and separate roles of fathers and mothers to see how each, separately and interactively, has an influence on student achievement. With today's changing family and so many single-parent households, there is also a need to examine further the relationship between stepfather involvement versus original father on a child's school outcomes.

A second area that needs further investigation is the combined or interactive influence of both parent and teacher practices within school and the home. There are studies that examine parent involvement programs with a frequent parent-teacher communication component, but there is a dire need for correlational studies that explore the combined interaction of concurrent parenting and teaching practices on student achievement.

A few studies included in the meta-analysis indicated a mismatch between parent involvement practices and students' school outcomes (Fehrmann et al., 1987; Reynolds & Gill, 1994). For example, African-American parents scored the highest in their sample on measures of *authoritativeness*, school involvement, and academic encouragement but did not yield the same positive results in student achievement as the other ethnic groups (Steinberg et al., 1992). Future studies need to address these issues in greater depth by investigating the impact of economic hardship, ethnicity, stress, schooling, and other intervening variables (e.g., community resources, parental self-efficacy) on the apparent mismatch between parent behaviors in low-income families and students' school performance.

Further investigation into parent involvement practices within different ethnic groups is also essential. Asian-American families had values, traditions, and parenting styles that differed from those of traditional Western families. We need to examine specific parenting beliefs and behaviors that may be more consistent with the ways that Asian- American and Latino-American parents view parenting and child development (Okagaki & Frensch, 1998). More investigation is also needed to explain why many Asian students excel without a high level of the

parental involvement practices that seem to have an influence on families in other ethnic groups. Naturalistic studies in this area may offer benefits that quantitative research does not.

Another area that needs to be investigated further is parenting styles in relation to student achievement. There were more than twenty parenting styles that emerged from the literature. The parenting patterns in different studies often overlapped. Consensus needs to be reached on the definitions of a select group of parenting patterns that characterize effective parenting so that they can be studied more in depth and with greater consistency by many researchers.

Many researchers have found differences in their results depending upon the reporter and perceptions. For instance, children's reports varied from parents' reports, particularly father's reports of autonomy support (Grolnick et al., 1991). Therefore, further study is required to determine the relations among various sources of information about the home and school environments. In addition, future research is needed to test whether actual parent involvement (as reported by parents) or perceived parent involvement (as reported by students, teachers, or parents) is a more important influence on achievement (Keith et al, 1993). Okagaki and Frensch (1998) suggest that a greater understanding of children's perceptions of their parents' beliefs, expectations, and behaviors is needed.

Lastly, several studies concluded that the relationship between student achievement and parent involvement practices appears to be reciprocal, and that this process is cyclical. For this reason, there is a need to explore this reciprocal process further. In addition, a few studies indicated that previous achievement influences later achievement (Glasgow et al., 1997). Future research must, therefore, control for students' previous achievement or ability when investigating the learning effects of parental involvement.

There were several limitations to this study. First, I built into my meta-analytic design potential mediators and moderators (i.e., socioeconomic status, and grade level), but there may be other moderating factors unaccounted for. Second, the categorization of parenting practices into the three categories of *fundamental, academic-oriented,* and *school-participation* parenting practices was based on the literature, but other classification systems may also have been used. Third, the collection of available studies for this meta-analysis is comprehensive representative of the larger body of studies on the bivariate relationship between parenting practices and student achievement, but there may be additional studies that were omitted that also represent a sample of the domain of studies on this topic. Next, when classification of a parenting practice fit into more than one category, judgment was used to place the practice into only one of the three designated categories and interrelated parenting practices were sometimes grouped together. Last, the data set and evidence for this meta-analysis was synthesis-generated evidence, and therefore, association rather than causality is claimed because other confounding variables are possibly true causes.

There are many avenues to explore in future research on the influences of parent involvement practices on student achievement. It is important that researchers first reach a consensus about how to define parent involvement. Then, they need to investigate further how the concurrent parenting practices that have been proven to be positively and significantly linked to higher student achievement in school also interact in either direction with other influences within the home, classroom, school, and community. By exploring how these multiple influences interact and overlap, researchers can gain a better understanding of how to bring greater school success to all of our nation's students.

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